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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/383,331      | 08/26/1999  | AMMAR DERRAA         | 100.718.422         | 6442             |

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EXAMINER

RAMSEY, KENNETH J

ART UNIT PAPER NUMBER

2879

DATE MAILED: 05/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/383,331

Applicant(s)

DERRAA, AMMAR

Examiner

Kenneth J. Ramsey

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 10-16 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 17-24 and 26-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

Applicant's election without traverse of claims 1-9, 17-24, and 26-31 is acknowledged. Claims 10-16 and 25 are withdrawn from consideration as being drawn to the non-elected invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is no clear antecedent basis for "structure" since the term structure has been applied to three separate elements in claim 1. None is disclosed to comprise glass. For examination purposes, applicant is deemed to be referring to the glass substrate in claim 8.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7-9, 17-21, 23, 24 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Raina et al 6,211,608 (Raina), Jones et al 5,534,743 (Jones '743) and Jones et al 6,069,443 (Jones '443). The admitted prior art, as disclosed in figure 1 and pages 1-4 comprises forming a metal conductive structure (cathode strips 14) on a substrate, forming a restrictive layer 15 covering the tops and sides of the conductive structure, forming

conical micropoint emitters 18 in contact with the conductive structure, thereafter depositing a dielectric layer and a grid conductor layer over the micropoints and substrate, and using a photolithographic step to form openings in the gate and dielectric layer to expose the micropoint emitters and to form the dielectric and grid structures spaced from the micropoints. AAPA differs from the claimed invention in that a separately deposited insulator layer is disposed between the resistive layer and dielectric structure. Raina discloses that the resistive layer tends to have pin holes causing shorts to develop. Therefore, Raina, column 5, lines 47-54, teaches the formation of a buffer layer insulator to substantially eliminate the possibility of short circuiting via the resistive layer. It was also known in the art that pin hole defects in insulative layers can cause shorting and that the problem of short circuiting can be overcome by providing the insulative layer in the form of multiple layers. Thus Jones '743, column 4, lines 45-60 and Jones '443, column 5, lines 26-33 discloses that the purpose of the multiple layers of insulation 22-24 or 13 was to prevent short circuiting due to pin hole defects. For the same reason, it would have been obvious to one of ordinary skill in the art at the time of applicants' invention to provide a buffer like insulative layer over the resistive layer prior to depositing the layer that forms the dielectric structure of AAPA since pin holes or other short circuit defects could occur in either the resistive layer or the dielectric layer. Thus claims 1, 9, 17, 24 and 26 are clearly unpatentable.

As to claims 2, 3, 18, 19 and 27-29, Raina, column 6, lines 15-17, discloses that aluminum could be used for the conductive structure. Since aluminum is well known for

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its excellent conductivity, it would have been obvious for one of ordinary skill in the art to employ aluminum as the conductive structure of AAPA. To further select a thickness of the conductor based upon the current carrying requirements of the device and known properties of the conductor (claim 29) would have been obvious to one of ordinary skill in the art since the same involves routine production start up procedure as per common case law. As to claims 4-5, 20-21, and 30, the patents to Jones and Raina each disclose that silicon oxide is a well known insulator. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to employ silicon oxide as the insulator of AAPA since it is a standard material for the insulator of field emission devices. As to claim 8, Raina would have suggested the use of soda-lime glass for the cathode substrate since soda-lime glass is cheap. Also to use glass would have been obvious since transparent glass is generally used for the face plate and to make the back plate and face plate of the same material provides for less stress on the device due to differential thermal expansion. As to claim 23, see column 6, lines 34-38 for the thickness of the layer provided to block short circuiting due to pin hole defects in the resistive layer..

Claims 6, 22 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art (AAPA) in view of Raina , Jones '743 and Jones '443 as above applied to claims 5, 21 and 30 further in view of Haung 5,578,896. Haung further discloses that both silicon oxide and silicon nitride are standard materials for the insulative layer of a field emission display. Further, Jones '743, columns 7 and 9, step 8, teaches the deposition of silicon nitride over the resistive layer. Therefore, it

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would have been obvious for one of ordinary skill in the art to substitute silicon nitride for the insulator of AAPA adjacent the resistive layer and silicon dioxide for the dielectric structure, since alternate layers of different materials are suggested for the dielectric of Jones '743.

Directions for Responses

Any formal response to this communication should be directed to examiner Kenneth Ramsey, Art Unit 2879, and either faxed to: 703-872-9318; or mailed to:

Assistant Commissioner For Patents  
Washington, D.C. 20231

Technical inquiries concerning this communication should be directed to Kenneth J. Ramsey, (703) 308-2324 (voice), (703) 746-4832 (fax).

kjr  
May 9, 2003

*Kenneth J. Ramsey*  
Kenneth J. Ramsey  
Primary Examiner